

BOOK REVIEWS

Bark Beetles in North American Conifers.—Jeffrey B. Mitton and Kareen B. Sturgeon (eds.). University of Texas Press, Austin. 527 pp. \$17.50.

It is appropriate for a discipline to step back and examine itself occasionally, as is done in this work. The volume consists of 10 chapters, each written by one or two specialists in the areas treated, with chapters 1 and 10 by the editors. It appears that camera-ready copy was prepared by the contributors in order to keep printing costs minimal, but without stringent editorial control as judged by the irregularity in the lower margin of each page and unused blank areas on several pages (e.g., p. 257). In spite of these minor lapses, the articles are clear and informative, with surprisingly little redundancy. Clerical errors vary from virtually none in one chapter to many in another.

Each chapter reviews principal contributions to existing knowledge and attempts to summarize the present status of the 10 fields treated. Several authors suggest areas where future research would be appropriate. The chapters for the most part are authoritative, but are unequal in quality, ranging from the very scholarly review of Aggregation Pheromones by Borden to two that might cause one to wonder if the authors had been exposed to literature of the past decade or two. In spite of this inconsistency, the volume should be required reading for anyone engaged in bark beetle research everywhere, not just in North America. However, the reader must be informed and alert, because all that is written is not so.

If the volume is to be criticized, first on the list should be the lack of adequate editorial and/or peer review prior to publication to remove archaic taxonomic nomenclature, outright errors in species citations, and other erroneous information. Second, with about three notable exceptions, the authors restricted their discussions to American species on conifers when a worldwide perspective was needed to make the point under consideration. No one called attention to the fact that Mexico, not the United States, is and has been the center of *Dendroctonus* evolution, or that two species, not just one member of this genus, occur in Asia. Third, a conspicuous void in this volume is the absence of a chapter on mating systems and mating behavior, recent advances of notable significance are not mentioned. Fourth, territorial behavior, including same-sex butting or dislodgement by attacking scolytids on the bark surface, and courtship ritual by non-stridulating beetles are not mentioned. Fifth, in the final chapter there are so many oversights, errors, and erroneous suppositions that its credibility is seriously undermined. For example, (a) scolytids are unknown from the Triassic (*Paleoscolytus* is an error in family placement and *Paleoipidus* is unassignable to any family), (b) scolytids are primarily polyphagous (not monophagous or oligophagous, as stated), (c) since few scolytid insect parasites prey exclusively on scolytids, evolutionary radiations tied closely to scolytids are very unlikely (parasitic mite radiations tied to scolytids are much more probable), (d) speciation models (pp. 352-357) are based primarily on ecotypes (host races often are examples) that are ephemeral populations that ordinarily do not form geographical races (subspecies) or species. However, they occasionally can become important in preadapting a population to a new environment which in turn could then lead to speciation, (e) the lack of genetic (or biochemical) diversity in Colorado ponderosa

pine (as compared to great diversity in California) is attributed to interaction with scolytids. However, ponderosa pine did not occur in Colorado until about 12,000 years ago or within several hundred miles of Colorado as recently as 16,000 years ago. It has occurred in California for a considerably longer period of time. Its recent migration into Colorado alone could have resulted in the lack of genetic diversity observed today. Considerably better evidence of bark beetle limitation of genetic diversity on ponderosa pine must be documented before they can be identified as significant factors in the suggested role.—*Stephen L. Wood, Department of Zoology, Brigham Young University, Provo, Utah 84602.*

Biological Diversification in the Tropics: Proceedings of the Fifth International Symposium for the Association for Tropical Biology.—G. T. Prance (ed.). 1982. Columbia University Press, New York. 714 pp. \$60.00.

This large volume champions the thesis that the myriad of moist forest patches (brejos) isolated during the Quaternary in several tropical areas of the world has resulted in a good deal of allopatric divergence and, thus, diversity. The result of such "refugia" are high degrees of endemism. This work is simply one of historical biogeography, which is a province primarily of systematists. Since there are probably more tropical insect species in the world than all other animals, it remains largely for systematic entomologists to grapple with the problem as to how these faunas originated. Although only 5 of the 37 papers in this book deal exclusively with insects (and 4 of the 5 are on Lepidoptera), there is plenty of food for thought on the subject provided by disparate disciplines. Unfortunately, the state-of-the-art on the historical biogeography of the region emphasized in the book, the Neotropics, is not progressive, let alone that of the other regions just casually covered.

Included are a section each on refugia theory and its applications, geology and paleoclimatology, vegetation, insects, vertebrates, primates and anthropology, and the Paleotropics. Redundancy throughout the book makes it much longer than is necessary. The introductions of the majority of papers cite the few early works on the subject and briefly review refugia theory despite the fact that a good introduction is already provided in the first chapter by Haffer. Maps overlap considerably, too, especially of the South American vegetation and climatic zones. Ab'Saber's 1977 map of Pleistocene climates, for instance, is presented twice, each time on a full page. A detailed map section in an appendix would serve for good general reference, although many of the figures in each paper are very informative. Limiting each contribution to four or five pages of original findings would not only have shortened the volume, but would have prevented reiteration of what some five authors (at least to my knowledge) have essentially published elsewhere.

The main accomplishment of the book is detailing endemism among various Neotropical taxa. The botanists, in particular, are very lengthy in their descriptions of floral regions. Some papers, such as those of Steyermark, Andrade-Lima, and Huber on Neotropical plants, are mostly just big lists. Lamas, with the standard zeal that lepidopterists have for geographic variation in wing patterns, lists subspecies of mostly pierids, ithomiine nymphalids, and satyrids endemic to 48 Peruvian sites. Although, as Strong comments, categorizations lead refugia theory to suffer because